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Draft A

White Bluffs Pickling Acid Cribs Expedited Response Action Proposal

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) recommended in 1992 that the U.S. Department of Energy (DOE) prepare an expedited response action (ERA) for the White Bluffs Pickling Acid Cribs Site (Location, Figure 1). The lead regulatory agency for this ERA is the EPA, with Ecology providing support. The ERA will follow applicable sections of 40 CFR 300, Subpart E (EPA 1990); the *Hanford Federal Facility Agreement and Consent Order* (Part 3, Article XIII, Section 38) (Ecology et al. 1989); the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA); the *Resource Conservation and Recovery Act of 1976* (RCRA); and the State of Washington *Model Toxics Control Act* (MTCA).

The goal of this ERA is to reduce the potential of any residual contaminant migration from the cribs to the soil column and groundwater. The cribs are the only waste site within the 100-IU-5 operable unit (Figure 2). Since the operable unit is surrounded by other waste units, tracing the potential groundwater contamination from the 100-IU-5 operable unit for this ERA would not be effective. Groundwater will be investigated as part of the 100-IU-2 operable unit.

This ERA proposal presents the preliminary characterization data from the site investigations conducted in November of 1992. This information is evaluated to present the best method for reducing potential of contaminant migration from the disposal unit, assuring both protection of human health and the environment.

The ERA proposal will undergo a public review. EPA and Ecology will issue an Action Agreement Memorandum after comment resolution. This Action Memorandum may authorize implementation of the ERA proposal's recommended alternative. The ERA may also provide a No Action Interim Record of Decision (ROD) of the 100-IU-5 operable unit.

2.0 SITE DESCRIPTION

The White Bluffs Pickling Acid Cribs Site is the only waste site identified in the 100-IU-5 operable unit. It is located south of the White Bluffs Town Site, in the 600 Area of the Hanford Site. The White Bluffs Area was the location of construction activities during the early days at Hanford. After construction, most of the facilities at the White Bluffs site were torn down. Other than the historical information obtained in the Hanford Site Waste Management Unit Reports (DOE-RL 1992a), little is known about activities conducted at the site in its early years. It is believed that the cribs received waste streams (primarily acid etch solutions) from a pipe fabrication facility operating sometime between 1943 and 1959. The pipe fabrication facility is suspected to have been located northeast of the cribs.

Figure 1. Location of the White Bluffs Pickling Acid Cribs.

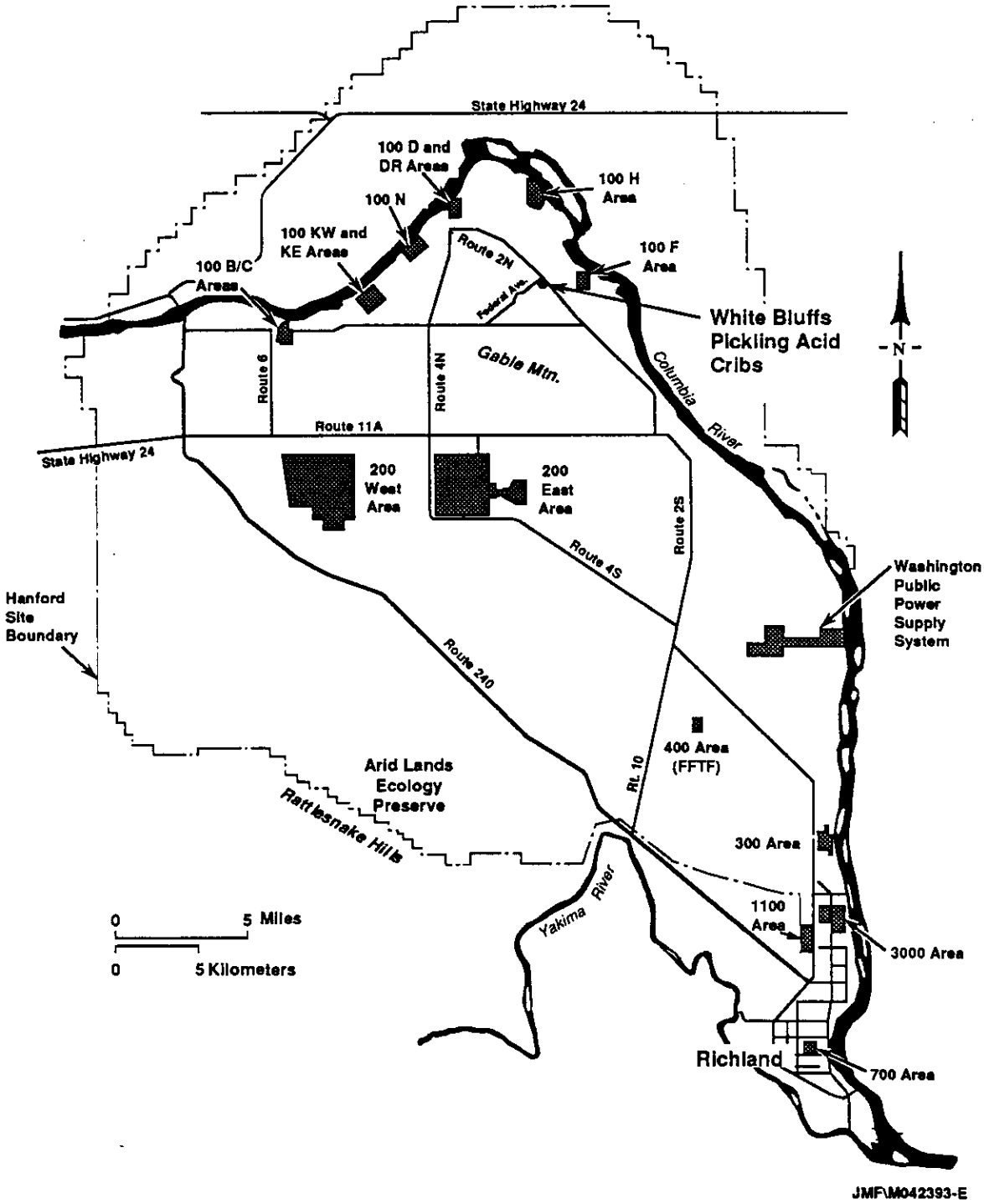
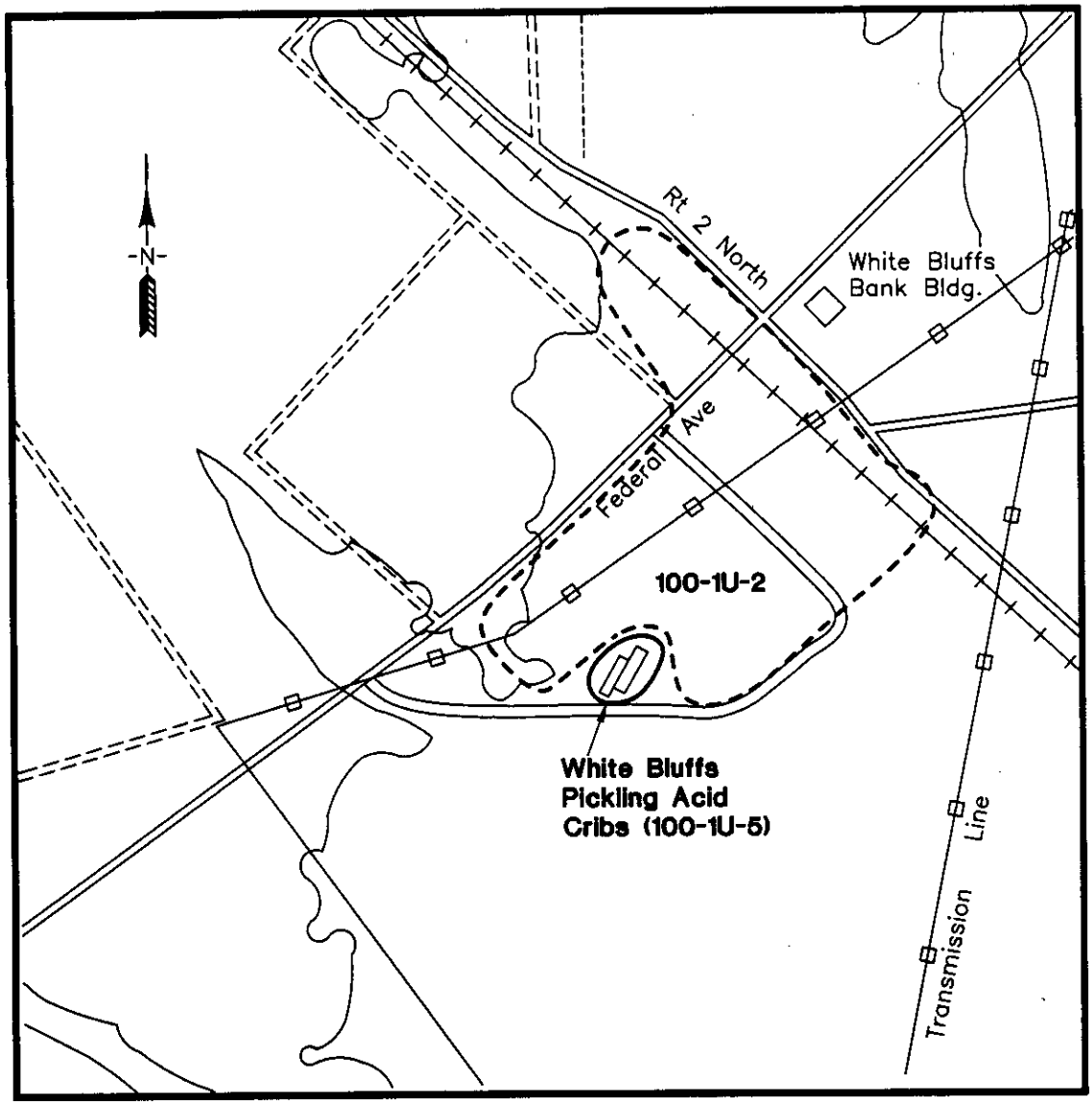


Figure 2. Location of the 100-IU-2 and 100-IU-5 Operable Units.



There are two pickling acid cribs at the site, located side by side, each approximately 200 ft by 50 ft. Each crib contains three evenly spaced rows of vent pipes, spaced 7 to 9 ft apart, which protrude from the cobbled surface of and run the length of each crib. Each of the cribs was constructed differently, as determined by the subsurface sampling. These differences are described in Section 3.3. A riser pipe, approximately 36-in. diameter, protruded from the northern end of the west crib (this pipe was removed during the investigation to obtain samples of soil beneath it).

To the north and east of the cribs are areas that appear to have been disturbed. The debris in the area indicates the possible presence of a landfill and/or building demolition areas. These areas are included in and will be investigated further as part of the 100-IU-2 operable unit. Investigation of the groundwater beneath 100-IU-5 will be conducted during the 100-IU-2 investigation to effectively determine potential contamination sources.

3.0 CHARACTERIZATION ACTIVITIES

The objective of ERA characterization activities was to determine the nature and extent of any environmental hazards at the site in question. Site characterization activities at the cribs was conducted late in 1992 and consisted of radiological surveys, nonintrusive ground-penetrating radar (GPR) and electromagnetic induction (EMI) surveys, historical research, visual site surveys, and soil sampling. The results of these activities are presented in the following sections.

3.1 RADIOLOGICAL SURVEYS

It is known that the White Bluffs area was "restricted" from receiving radioactive materials during facility operations. Both surface surveys and subsurface soil samples were taken to confirm this observation. Neither of the radiological surveys detected any radioactivity distinguishable from background levels.

3.2 GEOPHYSICAL SURVEYS

The GPR and EMI surveys conducted at the site in September 1992 provided an initial look at the boundaries of the cribs and the subsurface piping layout (Figure 3). This information was used during the preparation of the sampling plan to identify sampling locations. A majority of the information identified in the preliminary investigation was confirmed during the subsurface soil sampling. Interestingly, the two influent pipes do not merge, as was suggested by the underground survey. The actual layout of the influent pipes has been sketched on Figure 3. Figure 4 shows a section through each crib.

Figure 3. GPR Report/Pipe Layout.

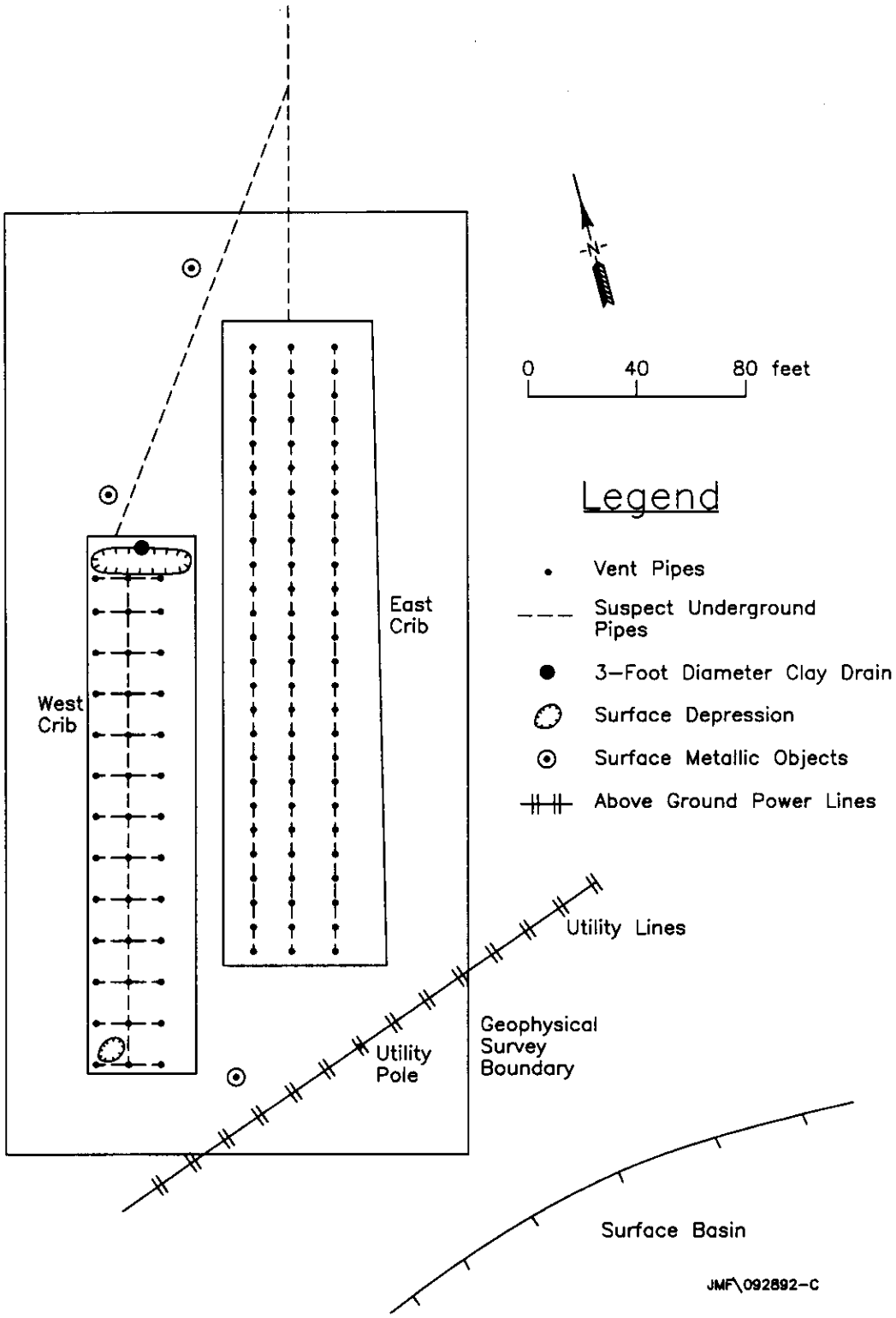
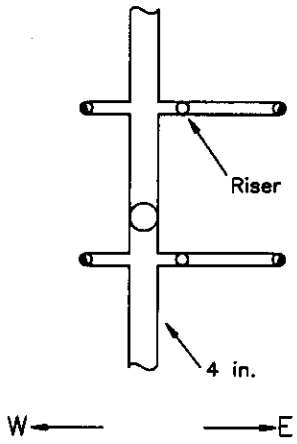
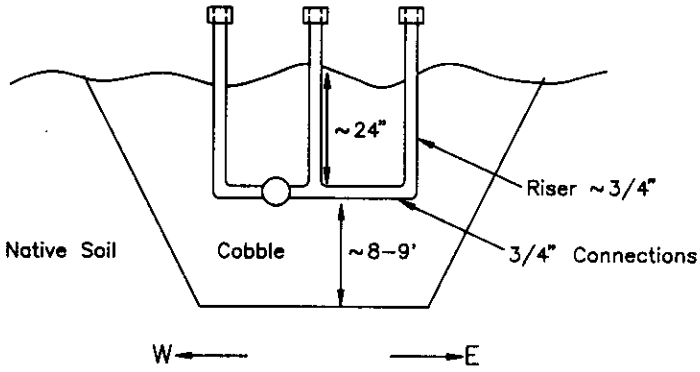


Figure 4. Sections Through Cribs.

West Trench



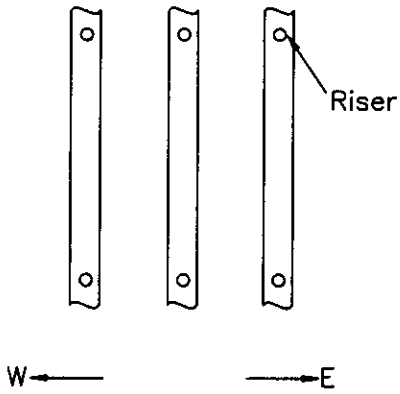
Plan View



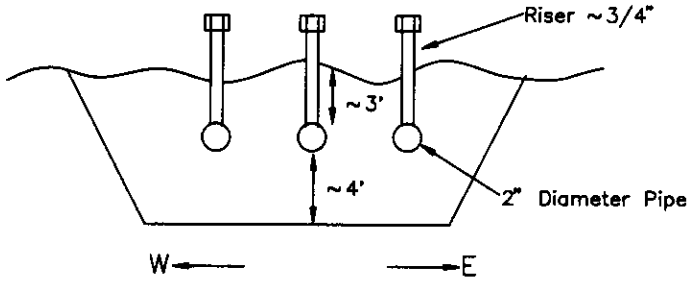
Side View

East Trench

Plan



Plan View



Side View

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3.3 HISTORICAL RESEARCH

Minimal historical data exists regarding the use of the White Bluffs Pickling Acid Cribs. There is no documentation available to indicate which facilities, of the many at White Bluffs during construction, released material to the cribs. Available information indicates only that the pickling proces used "several thousand gallons of acid" (DOE-RL 1992a); however, this volume is suspect since "several thousand gallons of acid" could refer to the acid etch solution, which is only 9-12% acid in an aqueous solution. While the information available was not specific regarding quantities, it was useful in narrowing the constituents of concern for this ERA to acids and the etching byproducts.

3.4 SAMPLING

Soil samples were collected from December 1 through December 7, 1992. These samples were both field screened and analyzed at a qualified analytical laboratory. A detailed sampling and analysis plan (WHC 1992) was prepared for this activity. This document received regulatory approval prior to the initiation of sampling activities.

Both surface and intrusive soil samples were taken to determine the nature and extent of potential soil contamination. Surface sampling consisted of collecting soil samples to a depth of 1 ft or less. Intrusive soil samples were obtained from test pits at depths to 14 ft below the surface. The test pits were also used to verify the configuration of the piping system and provided a visual inspection of the crib construction. The excavated material (soil, cobbles) was returned to the trenches after samples were taken. Table 1 details the soil samples location and analyses, while Figure 5 maps the sampling locations.

The sampling effort included investigating the crib's feeder pipes, which travel north out of both cribs, and a depression on the southeastern corner of the eastern crib, which may have been an overflow.

4.0 DATA ASSESSMENT

4.1 CONTAMINANTS OF CONCERN

Records indicate that the cribs were used as a disposal area for waste acids used to etch pipes. The sampling concentrated on looking for acids (nitric and hydrofluoric) and metals (chrome, zirconium) that might still be bound up in the soil. Over 35 years have lapsed since disposal to the facility ceased. Historical records did not indicate the disposal of other chemicals at the site; however, since it is known that the White Bluffs area was used as a receiving area for construction activities, it is also possible that oils and solvents may have been used during routine maintenance activities and sent through a drain to the cribs. Random samples of soil were taken as a check for other waste products which might have been discarded.

Table 1. Soil Sampling Locations and Analyses.

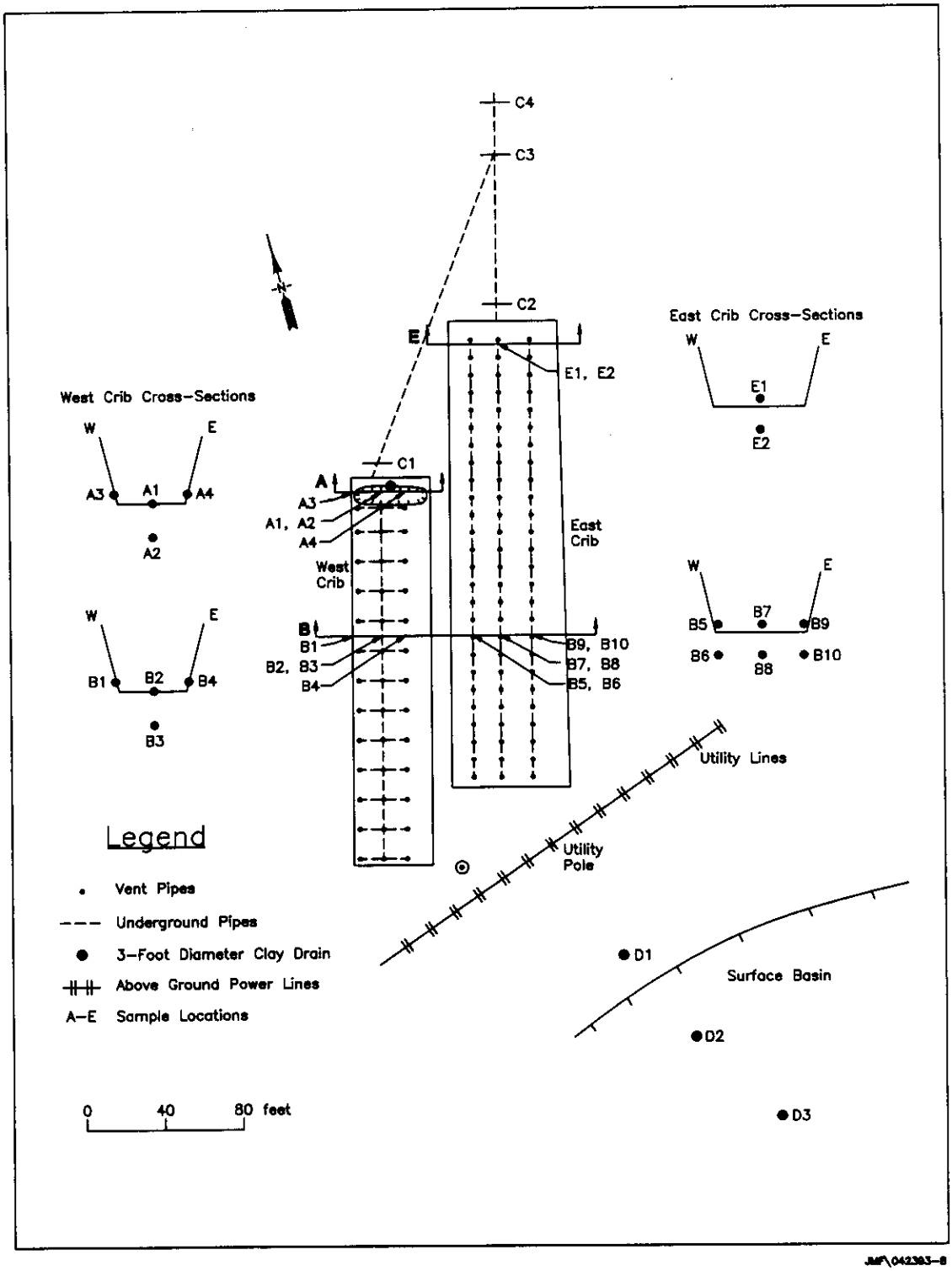
Sample site	Sample identifier (HEIS number)	Location of sample	Analyses
A1	B07P78	10 ft below surface, taken within 1 ft of interface between soil and crib bottom	FS
A2	B07PZ1	14 ft below surface, directly beneath A1	FS
A3	B07PY9	9 ft below surface	SS
A4	B07PZ3	8 ft below surface	SS
B1	B07PZ5	6-7 ft below surface	SS
B2	B07PZ6	11-12 ft below surface	FS
B3	B07PZ7	15-16 ft below surface	FS
B4	B07P78	6-7 ft below surface	SS
B5	B07PZ9	5-6 ft below surface	SS
B6	B07Q00	10-11 ft below surface	SS
B7	B07Q01	5-6 ft below surface	FS
B8	B07Q03	10-11 ft below surface	FS
B9	B07Q04	5-6 ft below surface	SS
B10	B07Q05	10-11 ft below surface	SS
C1	B07Q06	3-4 ft below surface	SS
C2	B07Q09	4-5 ft below surface	SS
C3	B07Q07	3-4 ft below surface	SS
C4	B07Q08	3-4 ft below surface	SS
D1	B07Q10	6-12 in.	SS
D2	B07Q11	6-12 in. below surface	SS
D3	B07Q12	6-12 in. below surface	FS
E1	B07PZ2	7 ft below surface	FS
E2	B07PZ4	12 ft below surface	FS
NA	B07Q02	Duplicate of sample B07Q01	FS
NA	B07Q13	Split of sample B07Q12	FS
NA	B07Q14, B07Q15, B07Q16	Background samples, taken in undisturbed soil west of the cribs (6-12 in. below surface)	SS
NA	B07QZ0	Equipment blank	SS

FS = Indicates sample was analyzed for the full suite of analyses, which includes TAL Metals, 6010 FOR ZR, Anions (EPA 300.0), Nitrate/Nitrite (EPA 353.2), Ammonia, pH, Calcium Carbonate (Hardness, EPA 130.2), Semi-VOA (CLP), VOA (CLP), Gamma Spec., TPH (Diesel Range), TPH (Heavier than Diesel Range).

SS = The short list samples were analyzed for expected contaminants. These ar all categories in the FS list that have been underlined.

NA = Not applicable, sample site not numbered.

Figure 5. Soil Sampling Locations.



4.2 DATA VALIDATION

All samples sent to offsite laboratories were analyzed per EPA Level IV quality (radiological samples, Level V), and the analysis results have been sent to an offsite contractor for data validation. Validation reports have qualified the data as indicated in Tables 2 and 3 presented in Section 4.3.

4.3 DATA TABLES

Tables 2 and 3 present the condensed results of soil sampling analysis. The tables have been separated into anions and metals, which were the primary contaminants of concern. Both sets of data have been condensed to include only metals and anions, which would be indicators of acid etch solution disposal. A complete set of all sample analysis results is provided in Appendix A.

4.4 DATA SUMMARY

A review of the analytical data indicated that no contaminants are present in concentrations high enough to present risks to human health or the environment. This determination is supported by the fact that most chemical concentrations are well within the range of background concentrations. Of the chemicals whose average concentrations exceeded background concentration ranges, none exceeded risk-based limits, as defined by the Hanford Site Baseline Risk Assessment Methodology (DOE-RL 1993). These limits are presented in Table 4.

5.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Section 7.5 of the Action Plan in the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989) contains the basic description of applicable or relevant and appropriate requirements (ARAR).

There are no applicable federal cleanup standards or chemical-specific ARARs for compounds in soil (hazardous or radioactive) except the EPA standards for lead and radium. Washington State Regulations (WAC 173-340) provide soil cleanup standards; however, because the sampling data do not indicate any contamination of the background levels, the cribs are not a threat to human health and/or the environment.

Table 2. Metals (Reported in mg/kg).

SAMPLE #	AL	CR	CU	FE	PB	MG	MN	NI		ZN	ZR	
B07PY8	5360	9.1	23.5	14600	3.9	3310	138	6.2	B	71.8	17.1	U
B07PY9	5650	9.4	16.7	14200	3.4	3610	142	8.3		63.7	17.5	U
B07PZ1	5700	11.2	20.7	13500	4.1	4080	175	9.5		50.7	18.0	
B07PZ3	5020	8.0	13.6	15300	3.1	3460	149	7.1	B	60.5	18.3	U
SECTION A AVERAGE	5433	9.4	18.6	14400	3.6	3615	151	7.8		61.7	17.7	
B07PZ2	5010	9.3	17.3	12700	3.1	3720	156	8.8		30.3	17.4	U
B07PZ4	5550	10.0	17.6	13200	4.0	4350	213	10.3		31.3	18.6	U
SECTION E AVERAGE	5280	9.7	17.5	12950	3.6	4035	185	9.6		30.8	18.0	
B07PZ5	6810	14.0	17.6	15900	4.2	5130	226	14.3		43.0	18.2	U
B07PZ6	4310	7.7	15.2	12900	3.5	2960	144	7.9	B	30.5	17.9	U
B07PZ7	4630	8.7	13.7	12300	2.6	3570	177	8.0	B	28.8	18.1	U
B07PZ8	4640	9.1	11.0	11600	2.5	3520	149	8.7		28.0	17.3	U
B07PZ9	7000	13.6	16.9	15600	6.5	6500	265	13.3		40.9	18.6	U
B07Q00	4140	7.5	13.7	14900	2.5	3420	183	8.8		30.6	17.4	U
B07Q01	5800	10.2	14.6	15000	3.3	4620	190	10.8		35.6	17.5	U
B07Q03	4320	9.3	11.8	12600	2.9	3560	178	8.8		28.0	16.9	U
B07Q04	5930	11.0	10.5	16000	3.4	4920	212	10.7		38.2	18.7	U
B07Q05	4170	7.2	13.2	15900	2.5	3470	218	9.6		33.6	20.8	U
SECTION B AVERAGE	5175	9.8	13.8	14270	3.4	4167	194	10.1		33.7	18.1	
B07Q06	5730	10.0	9.7	17600	2.9	4390	240	9.8		35.0	17.3	U
B07Q09	5720	7.9	10.7	20800	3.4	4320	376	11.3		46.6	17.7	U
B07Q07	6010	9.9	10.4	19100	3.6	4410	257	10.6		1020.0	25.9	
B07Q08	4070	6.5	6.6	12900	4.3	3220	196	7.4	B	1070.0	17.9	U
SECTION C AVERAGE	5383	8.6	9.4	17600	3.6	4085	267	9.8		542.9	19.7	
B07Q10	5730	10.2	18.7	16300	6.7	3740	190	9.2		68.7	19.2	U
B07Q11	8060	13.3	14.2	23400	5.1	5210	263	12.5		554.0	19.4	U
B07Q12	7370	43.1	11.4	19200	3.9	4040	177	27.8		50.5	17.2	U
SECTION D AVERAGE	7053	22.2	14.8	19633	5.2	4330	210	16.5		224.4	18.6	

Table 3. Anions (Reported in mg/kg).

SAMPLE #		NO3/NO2 (AS N)	CHLORIDE	FLOURIDE	PHOSPHATE		SULFATE	pH
B07PY8	A1	7.41	1.80	0.30	0.80	U	25.00	5.50
B07PY9	A3	3.83	2.30	0.40	0.80	U	15.00	6.70
B07PZ1	A2	3.89	1.40	0.60	1.00		13.00	7.90
B07PZ3	A4	2.52	1.80	0.40	1.00		10.00	7.20
A AVERAGE		4.41	1.83	0.43	0.90		15.75	6.83
B07PZ2	E1	2.42	2.10	1.10	1.00		11.00	8.30
B07PZ4	E2	2.42	2.10	0.80	1.00		11.00	8.90
E AVERAGE		2.42	2.10	0.95	1.00		11.00	8.60
B07PZ5	B1	2.43	2.20	0.50	2.00		6.00	9.00
B07PZ6	B2	2.53	2.00	0.40	0.80	U	8.00	7.80
B07PZ7	B3	2.48	1.80	0.30	1.00		6.00	8.60
B07PZ8	B4	2.59	2.20	0.30	1.00		5.00	8.30
B07PZ9	B5	2.46	2.20	0.70	0.80	U	10.00	8.70
B07Q00	B6	2.46	1.80	0.30	1.00		6.00	9.10
B07Q01	B7	2.54	2.00	1.00	1.00		10.00	9.20
B07Q03	B8	2.57	2.10	0.30	1.00		6.00	9.60
B07Q04	B9	2.55	2.30	1.00	1.00		6.00	9.10
B07Q05	B10	2.52	2.10	0.50	0.80	U	5.00	8.50
B AVERAGE		2.51	2.07	0.53	1.04		6.80	8.79
B07Q06	C1	2.47	12.00	1.50	0.80	U	292.00	9.00
B07Q09	C2	2.51	181.00	2.50	0.80	U	329.00	8.50
B07Q07	C3	2.42	7.80	1.90	2.00		44.00	10.40
B07Q08	C4	2.50	2.30	1.40	1.00		4.00	8.50
C AVERAGE		2.48	50.78	1.83	1.15		167.25	9.10
B07Q10	D1	16.30	5.10	0.70	2.00		95.00	6.80
B07Q11	D2	3.70	3.40	1.00	2.00		42.00	6.40
B07Q12	D3	3.52	11.50	1.40	1.00		23.00	7.10
D AVERAGE		7.8	6.7	1.0	1.7		53.3	6.8

Table 4. Risk Calculations.

Chemical of concern (Ave. detected > background)	Background range (mg/kg)	Detected range (Average-mg/kg)	Lowest risk-based standard for soil (mg/kg)
Chromium	8.5-9.8	6.5-43.1 (10.52)	8000
Copper	9.3-10.1	6.6-23.5 (13.37)	Data not available
Zinc	43.3-46.6	28-1070[a] (137.7)	2400

[a]The highest value of zinc was found directly beside the galvanized pipe. The value was most likely elevated due to the presence of metal pipe scrapings in the sample, since the pipe was hit while excavating to expose it. The lower set of values corresponds to range and average if the highest value is thrown out.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The chemical concentrations detected at the White Bluffs Pickling Acid Cribs Site do not indicate that the cribs pose any threat to human health or the environment, since the chemicals detected are well within background soil concentration ranges. Therefore, the site no longer exists as a potential source of contamination to the groundwater. Historical releases to the cribs may have released some chemical inventory to the groundwater; however, because the unit is bordered on three sides by 100-IU-2, groundwater sampling in the vicinity of the pickling acid cribs will not clearly determine if the cribs were a source of contamination until the waste units surrounding them are investigated. Groundwater will be investigated as part of the 100-IU-2 operable unit.

No action to remove contamination is required for the closure of the White Bluffs Pickling Acid Cribs. It is recommended that a No Action Interim Record of Decision be issued to the DOE for the 100-IU-5 operable unit. It is further recommended that the physical hazards associated with the cribs be removed from the site as a landlord cleanup action.

7.0 REFERENCES

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, Public Law 96-510, 94 Stat. 2767, 26 USC 1 et seq.

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APPENDIX A

ANALYTICAL DATA

Table A-1. Inorganics (Anions, pH, Hardness).

CONCENTRATIONS REPORTED IN MG/KG, EXCEPT pH.

SAMPLE #	LOCATION	HARDNESS (METHOD 130.2)	NO3/NO2 (AS N)	CHLORIDE	FLOURIDE	PHOSPHATE	SULFATE	AMMONIA (AS N)	pH	FIELD pH
B07PY8	A1	8400	7.41	1.8	0.3	0.8 U	25	0.2 U	5.5	5.6
B07PY9	A3	11100	3.83	2.3	0.4	0.8 U	15	0.2 U	6.7	6.6
B07PZ0	EQUP. BLK	140	2.43 U	3	0.2	0.8 U	3	0.2 U	7.6	
B07PZ1	A2	7500	3.89	1.4	0.6	1	13	0.2 U	7.9	7
B07PZ2	E1	11100	2.42 U	2.1	1.1	1	11	0.2 U	8.3	7.2
B07PZ3	A4	9200	2.52	1.8	0.4	1	10	0.2 U	7.2	7.1
B07PZ4	E2	22700	2.42 U	2.1	0.8	1	11	0.2 U	8.9	9.1
B07PZ5	B1	16100	2.43 U	2.2	0.5	2	6	0.2 U	9	8.4
B07PZ6	B2	7100	2.53 U	2	0.4	0.8 U	8	0.2 U	7.8	8
B07PZ7	B3	6800	2.48 U	1.8	0.3	1	6	0.2 U	8.6	7.8
B07PZ8	B4	6400	2.59 U	2.2	0.3	1	5	0.2 U	8.3	8.5
B07PZ9	B5	40700	2.46 U	2.2	0.7	0.8 U	10	0.2 U	8.7	9
B07Q00	B6	7100	2.46 U	1.8	0.3	1	6	0.2 U	9.1	8.2
B07Q01	B7	18700	2.54 U	2	1	1	10	0.2 U	9.2	8.6
B07Q02	DUP Q01	24500	2.46 U	2.2	1.1	1	10	0.2 U	8.8	8.6
B07Q03	B8	21200	2.57 U	2.1	0.3	1	6	0.2 U	9.6	9.2
B07Q04	B9	27000	2.55 U	2.3	1	1	6	0.3	9.1	8.2
B07Q05	B10	10900	2.52 U	2.1	0.5	0.8 U	5	0.3	8.5	8.7
B07Q06	C1	21900	2.47 U	12	1.5	0.8 U	292	0.4	9	8.7
B07Q07	C3	19300	2.51 U	181	2.5	0.8 U	329	3.5	8.5	8.1
B07Q08	C4	24000	2.42 U	7.8	1.9	2	44	1	10.4	9.7
B07Q09	C2	16000	2.5 U	2.3	1.4	1	4	0.4	8.5	8
B07Q10	D1	14800	16.3	5.1	0.7	2	95	3.8	6.8	7
B07Q11	D2	11500	3.7	3.4	1	2	42	1.2	6.4	6.4
B07Q12	D3	11600	3.52	11.5	1.4	1	23	4.3	7.1	6.7
B07Q13	SPLT Q12	50.9	2.7	27	3.2	4.4	23.2	6.9	6.9	6.7
B07Q14	BACKGRND	14400	3.24	2.3	0.6	2	4	0.4	8	7.7
B07Q15	BACKGRND	13800	5.81	3	0.3	2	54	0.4	8	7.6
B07Q16	BACKGRND	14500	2.51 U	3	0.7	2	4	0.4	8	7.6

Table A-2. Metals (Inorganic) Reported in mg/kg. (sheet 1 of 2)

SAMPLE #	LOCATION	MAGNESIUM	MANGANESE	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	VANADIUM	ZINC	ZIRCONIUM
B07PY8	A1	3310	138	6.2 B	820 B	0.59 U	0.7 U	139 B	41.4	71.8	17.1 U
B07PY9	A3	3610	142	8.3	863 B	0.54 U	0.89 B	166 B	37	63.7	17.5 U
B07PZ0	EQUP. BLK	7.3 B	0.23 B	0.51 U	15.5 U	0.75 B	0.7 U	22.1 B	0.49 U	1.8 B	17.2 U
B07PZ1	A2	4080	175	9.5	763 B	0.62 B	0.74 U	171 B	34.1	50.7	18
B07PZ2	E1	3720	156	8.8	824 B	0.6 U	0.96 B	136 B	30.1	30.3	17.4 U
B07PZ3	A4	3460	149	7.1 B	784 B	1.1	0.98 B	151	41.6	60.5	18.3 U
B07PZ4	E2	4350	213	10.3	794 B	0.61 U	0.76 U	166 B	32.4	31.3	18.6 U
B07PZ5	B1	5130	226	14.3	1030 B	0.59 U	1.2 B	189 B	36.7	43	18.2 U
B07PZ6	B2	2960	144	7.9 B	542 B	0.57 U	0.86 B	158 B	39.2	30.5	17.9 U
B07PZ7	B3	3570	177	8 B	555 B	0.54 U	0.74 U	149 B	33.6	28.8	18.1 U
B07PZ8	B4	3520	149	8.7	630 B	0.64 B	0.95 B	124 B	27.1	28	17.3 U
B07PZ9	B5	6500	265	13.3	1140	0.95 B	0.76 U	194 B	33.9	40.9	18.6 U
B07Q00	B6	3420	183	8.8	504 B	0.67 B	0.81 B	173 B	40.5	30.6	17.4 U
B07Q01	B7	4620	190	10.8	1010	0.63 U	0.75 B	142 B	34.9	35.6	17.5 U
B07Q02	DUP Q01	4910	200	11.8	1010 B	0.6 U	0.79 B	145 B	35.4	38	18.4 U
B07Q03	B8	3560	178	8.8	551 B	0.68 B	0.69 U	129 B	34.2	28	16.9 U
B07Q04	B9	4920	212	10.7	1230	0.63 U	0.99 B	154 B	34.1	38.2	18.7 U
B07Q05	B10	3470	218	9.6	546 B	0.72 U	0.97 B	200 B	39.7	33.6	20.8 U
B07Q06	C1	4390	240	9.8	1260	0.58 U	1.3 B	362 B	35.9	35	17.3 U
B07Q07	C3	4410	257	10.6	1140 B	0.74 U	1.8 B	543 B	40.9	1020	25.9
B07Q08	C4	3220	196	7.4 B	866 B	0.61 U	0.81 U	750 B	30.1	1070	17.9 U
B07Q09	C2	4320	376	11.3	1020	0.65 B	1.3 B	178 B	52.6	46.6	17.7 U
B07Q10	D1	3740	190	9.2	1430	0.68 U	1 B	136 B	39.3	68.7	19.2 U
B07Q11	D2	5210	263	12.5	1980	0.7 U	1.5 B	493 B	55.9	554	19.4 U
B07Q12	D3	4040	177	27.8	1710	0.67 U	0.93 B	165 B	51.5	50.5	17.2 U
B07Q13	SPLT Q12	3670	143	13.6	1410	0.41 U	2.04 U	165 B	36	40.4	
B07Q14	BACKGRND	3850	347	8.7	1490	0.6 U	1.4 B	131 B	48.5	46.6	20.9
B07Q15	BACKGRND	3680	317	8.9 B	1710	0.71 U	1.3 B	140 B	42.7	43.3	20.4 U
B07Q16	BACKGRND	4180	372	9.9	1620	0.67 U	2.1 B	176 B	58.8	49.4	30.7

Table A-2. Metals (Inorganic) Reported in mg/kg. (sheet 2 of 2)

SAMPLE #	LOCATION	ALUMINUM		ARSENIC		BARIUM		BERYLLIUM		CALCIUM		CHROMIUM		COBALT		COPPER	IRON	LEAD
B07PY8	A1	5360		1.5	B	44.1		0.17	B	2600		9.1		6.4	B	23.5	14600	3.9
B07PY9	A3	5650		1.6	B	41.2		0.21	B	2810		9.4		6	B	16.7	14200	3.4
B07PZ0	EQUP. BLK	33.9	B	0.36	U	0.14	U	0.06	U	0.29	U	0.51	U	0.25	U	8.4	451	0.77
B07PZ1	A2	5700		1.2	B	36.8	B	0.19	B	2870		11.2		6.6	B	20.7	13500	4.1
B07PZ2	E1	5010		1.1	B	44.7		0.22	B	2800		9.3		6.1	B	17.3	12700	3.1
B07PZ3	A4	5020		1	B	39.4	B	0.18	B	3010		8		6.8	B	13.6	15300	3.1
B07PZ4	E2	5550		2.3		50.8		0.19	B	8010		10		6.2	B	17.6	13200	4
B07PZ5	B1	6810		1.9	B	56.1		0.28	B	4650		14		9.1	B	17.6	15900	4.2
B07PZ6	B2	4310		1.2	B	41		0.16	B	2850		7.7		7.3	B	15.2	12900	3.5
B07PZ7	B3	4630		1.2	B	29.5	B	0.13	U	2800		8.7		5.9	B	13.7	12300	2.6
B07PZ8	B4	4640		1.2	B	29.7	B	0.14	B	2590		9.1		5.7	B	11	11600	2.5
B07PZ9	B5	7000		2	B	73.8		0.24	B	22400		13.6		8.7	B	16.9	15600	6.5
B07Q00	B6	4140		1.3	B	43.1		0.2	B	3530		7.5		7.5	B	13.7	14900	2.5
B07Q01	B7	5800		1.3	B	58.3		0.31	B	6410		10.2		7.3	B	14.6	15000	3.3
B07Q02	DUP Q01	5730		1.5	B	54		0.24	B	6330		9.6		8.3	B	14.7	15300	5.3
B07Q03	B8	4320		1	B	38.1	B	0.18	B	5170		9.3		6.5	B	11.8	12600	2.9
B07Q04	B9	5930		2	B	67		0.23	B	9130		11		7.1	B	10.5	16000	3.4
B07Q05	B10	4170		1.3	B	39.7	B	0.18	B	4310		7.2		7.2	B	13.2	15900	2.5
B07Q06	C1	5730		1.7	B	55.6		0.26	B	6750		10		6.9	B	9.7	17600	2.9
B07Q07	C3	6010		1.7	B	58.1		0.29	B	5220		9.9		7.6	B	10.4	19100	3.6
B07Q08	C4	4070		1.6	B	46.8		0.19	B	4230		6.5		5.9	B	6.6	12900	4.3
B07Q09	C2	5720		1.2	B	75.1		0.31	B	3900		7.9		10.9		10.7	20800	3.4
B07Q10	D1	5730		0.87	B	50.8		0.19	B	3400		10.2		6.7	B	18.7	16300	6.7
B07Q11	D2	8060		1	B	64.3		0.36	B	4940		13.3		10	B	14.2	23400	5.1
B07Q12	D3	7370		3.6		57.9		0.3	B	3460		43.1		9.3	B	11.4	19200	3.9
B07Q13	SPLT Q12	5370		2.4		52.3		0.29	B	3250		9.5		8.4	B	13.2	14600	3.6
B07Q14	BACKGRND	6090		0.87	B	72.8		0.31	B	3420		8.5		9.7		9.3	20500	3.5
B07Q15	BACKGRND	6090		0.9	U	68.2		0.26	B	3390		8.8		8.4	B	9.1	17900	3.1
B07Q16	BACKGRND	7220		1.2	B	79.6		0.37	B	3760		9.8		11	B	10.1	23300	3.5

Table A-3. Results of Organic Analyses (All Estimated).

SAMPLE	CONSTITUENT	ESTIMATED CONCENTRATION (ug/Kg)
B07Q01	Methylene Chloride	2 J
B07Q02	Methylene Chloride	3 J
B07Q03	Methylene Chloride	2 J
B07Q09	Diethylphthalate	110 J
B07Q12	Toluene	3 J
B07Q13	Methylene Chloride	6 J
	Di-n-butylphthalate	100 J
	Bis(2-ethylhexyl)-phthalate	36 J